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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,777

09/22/2003

Eric Chemisky

071308.0474

9548

31625

7590

10/04/2004

BAKER BOTTS L.L.P.  
PATENT DEPARTMENT  
98 SAN JACINTO BLVD., SUITE 1500  
AUSTIN, TX 78701-4039

EXAMINER

BUDD, MARK OSBORNE

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/667,777

**Applicant(s)**

CHEMISKY ET AL.

**Examiner**

Mark Budd

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 9, 11-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 7, 10 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9-22-03</u> . | 6) <input type="checkbox"/> Other: ____.  |

Art Unit: 2834

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma in view of Nakane .

Tanuma teaches a piezoelectric actuator (Fig. 1 #12) whose physical output position is temperature compensated via connecting a capacitor in series with the actuator. Nakane (compare fig. 9, 10 and 12) teaches that piezoelectric actuators can be temperature compensated by a capacitor connected either a series figs.. 9, 10) or in parallel (fig. 12) with the piezo element. Thus, in view of the equivalent teaching of Nakane, it would have been obvious to one of ordinary skill in the art that Tanuma could be temperature compensated by either a series or parallel connected capacitor. Common housing of drive circuitry and piezo actuators is known per se (official notice taken). It is also noted that optimization of a known device has long been held to be within the skill expected of the routineer. Thus selection specific values for e.g. the capacitor would have been obvious to one of ordinary skill in the art. The ultimate use selected for the actuator (fuel injector) is known per se. (official notice taken) and is not relevant to the patentability of the specific transducer/capacitor structure actually claimed.

Claims 6, 8, 11, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma in view of Nukane as applied to claim 1 above, and further in view of Suzuki.

These claims add that a temperature sensor is placed in the housing with the piezo actuator, and the sensed temperature is fed back to the drive/control to help correct for temperature induced changes in the length of the piezoelectric actuator. Suzuki teaches such a feed back system, monitoring piezo environmental temperature is already known as a means and method of compensating for temperature induced length changes in a piezo actuator. Thus its addition to the temperature compensation means used taught by the combination of Nakane and Tanuma (described above) for its known, expected result, would have been obvious to one of ordinary skill in the art.

Claims 7, 10 and 18 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Further cited of interest are Watanabe (parallel capacitor), Ohkuma (series capacitor) and Millen (temp-comp circuitry).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Budd Mark whose telephone number is (571)272-2019. The examiner can normally be reached on M. Budd from Monday-Thursday to 6am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramirez Nestor, can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2834

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Budd/ds

09/24/04

~~MAR 14 04~~ BUDD  
PRIMARY EXAMINER  
ART UNIT 2834